

RD29180-2

IN THE CLAIMS

1. (Currently Amended) A spin coating process, comprising:

dispensing a solution of a solution solvent and about 3 to about 30 wt% thermoplastic polymer, based upon the total weight of the solution, wherein the solution solvent has a boiling point at atmospheric pressure of about 110°C to about 250°C, a polarity index of greater than or equal to about 4.0, and a pH of about 5.5 to about 9;

spinning the substrate; and

removing the solution solvent to produce a coated substrate comprising a coating having less than or equal to 10 asperities over the entire surface of the coated substrate.

2. (Currently Amended) The process of Claim 1, where the thermoplastic polymer has a weight average molecular weight of 20,000 to 70,000 Daltons.

3. (Original) The process of Claim 1, where the thermoplastic polymer has a Tg about 200 to about 260°C.

4. (Original) The process of Claim 1, where the thermoplastic polymer has less than or equal to about 20 meq/Kg of functional groups selected from the group consisting of: carboxylic acids, carboxylic acid salts, carboxylic anhydrides, amines, phenols, alcohols, nitriles, epoxides, oxetanes, isocyanates, cyanurates, oxazoles, cyclobutyl, alkenes, alkynes, and combinations comprising at least one of the foregoing groups.

5. (Original) The process of Claim 4, where the functional groups comprise carboxylic acid groups.

6. (Currently Amended) The process of Claim 1, where the thermoplastic polymer has a weight average molecular weight, measured determined by GPC using methylene chloride as a GPC solvent, that changes by less than or equal to about 10% during the entire process.

RD29180-2

7. (Original) The process of Claim 1, where the thermoplastic polymer is a resin selected from the group consisting of polyimides, polyetherimides, polysulfones, polyethersulfones, polycarbonates, polyester carbonates, polyphenylene ethers, polyarylates, and combinations comprising at least one of the foregoing resins.

8. (Original) The process of Claim 1 where the solvent is selected from the group consisting of aryl acetates and C₄ - C₁₀ alkyl acetates, C₂-C₆ alkyl carbonates, formamides, C₁-C₆ N-alkyl formamides, C₁-C₆ alkyl sulfoxides, alkoxy alkyl acetates, C₁-C₆ N-alkyl pyrrolidones, phenols, C₁-C₆ alkyl phenols, aryl ethers, C₁-C₆ alkyl aryl ethers, C₁-C₆ alkyl ureas, C₄-C₆ sulfolanes, N-acetyl cyclic ethers, C₁-C₆ alkyl acetamides, C₁-C₆ alkyl phosphoramides, C₃-C₆ lactones, aryl alkyl ketones, and miscible combinations comprising at least one of the foregoing solvents.

9. (Currently Amended) The process of Claim 8, where the solvent is selected from the group consisting of butyl acetate, diethyl carbonate, formamide, methyl formamide, dimethyl formamide, dimethyl sulfoxide, methoxy ethyl acetate, N-methyl pyrrolidone, propylene carbonate, anisole, tetra methyl urea, dimethyl urea, sulfolane, methyl anisole, N-acetyl morpholine, dimethyl acetamide, mono methyl acetamide, veratole, hexamethyl phosphoramidate, butyrolactone ~~butyrolactone~~, acetophenone, phenol, cresol, mesitol, xlenol, and miscible combinations comprising at least one of the foregoing solvents.

10. (Original) The process of Claim 1, wherein the solvent comprises less than or equal to about 1 wt% halogens, based upon the total weight of the solvent.

11. (Original) The process of Claim 1, wherein the solvent has a dielectric constant of greater than or equal to about 10.

12. (Original) The process of Claim 1, wherein the solution has a viscosity, as measured by ASTM D1824 at room temperature, of about 1 to about 2,000 Cps.

13. (Original) The process of Claim 12, wherein the viscosity changes less than or equal to about 25% after heating at 45°C for 3 hrs.

RD29180-2

14. (Original) The process of Claim 1, wherein the solution comprises less than or equal to about 0.1 wt% particles having a diameter, measured along a major axis or greater than or equal to about 0.05 micrometers, as determined by laser light scattering.

15. (Original) The process of Claim 1, wherein the coating comprises a percent haze, as measured by ASTM D1003, of less than or equal to about 1%.

16. (Original) The process of Claim 1, where the solution has a water content of less than or equal to about 0.5 wt%, based upon the total weight of the solution.

17. (Original) The process of Claim 1, wherein the coated substrate has a peel strength of greater than or equal to about 1 lb/in.

18 - 35 (Cancelled)

36. (Withdrawn) A spin coated substrate formed by the process of Claim 1.

37. (New) The process of Claim 4, where the thermoplastic polymer has less than or equal to about 20 meq/Kg of functional groups selected from the group consisting of: amines, phenols, alcohols, nitriles, epoxides, oxetanes, isocyanates, cyanurates, oxazoles, cyclobutyl, alkenes, alkynes, and combinations comprising at least one of the foregoing groups.

38. (New) The process of Claim 7, where the thermoplastic polymer is a resin selected from the group consisting of polyimides, polyetherimides, and combinations comprising at least one of the foregoing resins.

39. (New) The process of Claim 7, where the thermoplastic polymer is a resin selected from the group consisting of polysulfones, polyethersulfones, and combinations comprising at least one of the foregoing resins.

40. (New) The process of Claim 7, where the thermoplastic polymer is a resin selected from the group consisting of polycarbonates, polyester carbonates, and combinations comprising at least one of the foregoing resins.

RD29180-2

41. (New) The process of Claim 7, where the thermoplastic polymer is a resin selected from the group consisting of polyphenylene ethers, polyarylates, and combinations comprising at least one of the foregoing resins.

42. (New) A spin coating process, comprising:

dispensing a solution of a solution solvent and about 3 to about 30 wt% thermoplastic polymer, based upon the total weight of the solution, wherein the solution solvent has a boiling point at atmospheric pressure of about 110°C to about 250°C, a polarity index of greater than or equal to about 4.0, and a pH of about 5.5 to about 9, wherein the thermoplastic polymer has a weight average molecular weight, measured determined by GPC using methylene chloride as a GPC solvent;

spinning the substrate; and

removing the solution solvent to produce a coated substrate; and

changing the weight average molecular weight by less than or equal to about 10% during the entire process.